**INDIANA DEPARTMENT OF TRANSPORTATION**
**OFFICE OF MATERIALS MANAGEMENT**

# ACCEPTANCE PROCEDURES FOR AGGREGATE DRAINAGE LAYERS
# ITM No. 225-18

## 1.0 SCOPE.

**1.1** This method sets forth the acceptance procedures to be used when Aggregate Producers request that coarse aggregates be evaluated for use as Aggregate Drainage Layers under HMA pavement.

**1.2** Aggregate Drainage Layer (ADL) aggregates are required to be both stable to allow adequate conditions for HMA placement and permeable to allow for adequate drainage of the pavement.

**1.3** This method requires a Certified Aggregate Producer submit a candidate coarse aggregate to Office of Materials Management. The material will be tested for stability in accordance with AASHTO T 307, and for permeability in accordance with AASHTO T 215. If the results meet the requirements of this ITM, the material will be approved for use as an ADL material.

**1.4** The gradation of the material submitted for testing will be established as the target gradation for the approved ADL material. The ADL material shall be controlled as a Quality Assurance material in accordance with ITM 211.

**1.5** This procedure may involve hazardous materials, operations, and special equipment. All of the safety problems associated with the use of the test method may not be addressed herein. The user of the ITM is responsible for the establishment and implementation of appropriate safety and health practices and the applicability of regulatory limitations prior to use.

## 2.0 REFERENCES.

### 2.1 AASHTO Standards.

T 11 Materials Finer than 75 µm (No. 200) Sieve in Mineral Aggregates by Washing
T 27 Sieve Analysis of Fine and Coarse Aggregates
T 89 Determining the Liquid Limit of Soils
T 90 Determining the Plastic Limit and Plasticity Index of Soils
T 215 Permeability of Granular Soils (Constant Head)
T 307 Determining the Resilient Modulus of Soils and Aggregate Materials

**2.2 ITM Standards.**

207 Sampling Stockpiled Aggregates
211 Certified Aggregate Producer Program

**3.0 TERMINOLOGY.** Definitions for terms and abbreviations shall be in accordance with the Department's Standard Specifications, Section 101.

**4.0 SIGNIFICANCE AND USE.** This ITM shall be used to evaluate coarse aggregates for use in Aggregate Drainage Layers under HMA pavements.

**5.0 APPARATUS.**

**5.1** All apparatus will be in accordance with respective test method.

**6.0 GENERAL REQUIREMENTS.**

**6.1** Requests to have a coarse aggregate tested in accordance with this procedure shall be made by individual Aggregate Producers in writing to the Manager, Office of Materials Management. Information concerning the type of material and any applicable ledge numbers shall be included.

**6.2** The candidate coarse aggregate shall meet the following requirements:

**6.2.1** The aggregate shall be Class B or higher in accordance with 904.03(a). Aggregate classification will be based on materials of a similar origin supplied by the same Source.

**6.2.2** The gradation shall meet the following requirements:

| Sieve Size | Percent Passing |
|---|---|
| 1 1/2 in. (37.5 mm) | 100 |
| No. 4 (4.75 mm) | 0-50 |
| No. 200 (75 µm) | 0-10 |

**6.2.3** Liquid limit shall be a maximum 25, in accordance with AASHTO T 89

**6.2.4** Plasticity Index shall be a maximum 5, in accordance with AASHTO T 90

**6.2.5** Permeability shall be a minimum 350 ft/day, in accordance with AASHTO T 215

**6.2.6** Permeability shall be a maximum 1000 ft/day, in accordance with AASHTO T 215

**6.2.7** Resilient Modulus shall be a minimum 15,000 psi, in accordance with AASHTO T 307

**6.3** Testing will be conducted by the Office of Materials Management and the Office of Geotechnical Services. In the event that these offices are unable to perform the testing, testing shall be conducted by an approved laboratory. In this case, the cost of shipping and testing of the coarse aggregate shall be the responsibility of the Aggregate Producer.

## 7.0 SAMPLING.

**7.1** Sampling of the coarse aggregate shall be in accordance with ITM 207 in the presence of the Department.

**7.2** The samples shall be sufficient in quantity to yield a minimum of 200 lbs of material.

## 8.0 PROCEDURE

### 8.1 Gradation Testing

**8.1.1** Gradation testing will be performed in accordance with AASHTO T 27.

### 8.2 Liquid Limit and Plasticity Index

**8.2.1** The Liquid Limit will be determined in accordance with AASHTO T 89.

**8.2.2** The Plasticity Index will be determined in accordance with AASHTO T 90.

### 8.3 Stability Testing

**8.3.1** To determine the stability of the candidate aggregate, Resilient Modulus will be determined in accordance with AASHTO T 307.

### 8.4 Permeability Testing

**8.4.1** Permeability testing will be performed in accordance with AASHTO T 215.

## 9.0 ACCEPTANCE CRITERIA.

**9.1** If the candidate coarse aggregate material meets the criteria in section 6.2, the aggregate will be approved for use as an Aggregate Drainage Layer aggregate.

## 10.0 ADDITIONAL REQUIREMENTS

**10.1** The gradation, as measured at the time of approval, shall be used as the established gradation for control as a Quality Assurance material in accordance with ITM 211, except the material shall be controlled on the following sieves:

**10.1.1** 1 ½" (37.5 mm)
**10.1.2** 1" (25.0 mm)
**10.1.3** 3/4" (19.0 mm)
**10.1.4** 1/2" (12.5 mm)
**10.1.5** No. 4 (4.75 mm)
**10.1.6** No. 8 (2.36 mm)
**10.1.7** No. 30 (600 µm)
**10.1.8** No. 200 (75 µm)

**10.2** The following tolerances shall be used for gradation control:

**10.2.1** Sieve size No. 8 (2.36 mm) and above = ± 10%
**10.2.2** Sieve size No. 30 (600 µm) = ± 6%
**10.2.3** Sieve size No. 200 (75 µm) = ± 2%